

**FINAL REPORT**

**Groundwater IRM  
1<sup>st</sup> Quarter 2014  
Groundwater Monitoring Report**

**GE Aviation  
612/51502**

**June 2014**



612 | 51502

**Groundwater IRM  
1<sup>st</sup> Quarter 2014  
Groundwater Monitoring Report**

**Evendale, Ohio**

**Prepared for:  
GE Aviation**

**612/51502**



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## 1. INTRODUCTION

O'Brien & Gere has prepared this report on behalf of the General Electric Company (GE) to present the results of groundwater monitoring activities conducted during January through March 2014 (herein referred to as First Quarter 2014) at the GE Aviation facility located in Evendale, Ohio. The quarterly monitoring event was conducted in accordance with the approach and methods outlined in the 2010 IRM Performance Monitoring Plan (PMP) prepared by O'Brien & Gere.

Groundwater monitoring was conducted to monitor the temporal effect on groundwater conditions of a groundwater Interim Remedial Measure (IRM). The groundwater IRM, which includes the operation of seven groundwater extraction wells and a groundwater treatment plant (GWTP), has been installed on the southern portion of the GE Aviation manufacturing facility (Facility) in Evendale, Ohio, within an area known as former Air Force Plant 36 (AFP 36) (Figure 1). The groundwater remedial measure was initiated as an IRM under a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit with the objective of mitigating off-site migration of compounds of potential concern (COPCs), while minimizing the risk of cross-contamination and/or reducing the effectiveness of biodegradation processes.

Groundwater monitoring data are evaluated and reported after each sampling event, including evaluations of quality assurance, cross-contamination potential, and significant short-term anomalies. A summary of the performance monitoring assessment for First Quarter 2014, including responses to the key study questions outlined in the PMP, is provided in Table 1. Relevant details are provided herein. Long-term trends and overall remediation progress will be evaluated and reported annually, at the end of each year.

## 2. METHODS

The groundwater monitoring network (Figure 1) consists of a total of 116 wells completed in three water-bearing units (Perched Zone, Upper Sand and Gravel (USG), and Lower Sand and Gravel (LSG)). As outlined in the PMP, the general scope of groundwater monitoring activities includes:

- Groundwater level monitoring using manual electronic as well as pressure transducer measurements at frequencies outlined in the PMP. Monitoring was conducted using a total of 66 wells completed in the Perched Zone (21 wells), USG (23 wells), and LSG (22 wells).
- Groundwater quality sampling using passive diffusion bag samplers (PDBs) for analysis of volatile organic compounds (VOCs) and in-situ field bioparameters (*e.g.*, dissolved oxygen [DO] and oxidation-reduction potential [ORP]) in accordance with frequencies outlined in the PMP. Groundwater samples were collected from a total of 44 wells completed in the Perched Zone (12 wells), USG (17 wells), and LSG (15 wells).
- Monthly sampling of groundwater from actively pumping extraction wells for analysis of VOCs.
- Evaluation of data from groundwater level and quality monitoring, including statistical analysis to address hydrogeologic conditions of stability (equilibrium) and potential cross-contamination.

Well completion data for groundwater level and quality monitoring are summarized in Tables 2 and 3, respectively. Methods and procedures for groundwater monitoring were conducted in accordance with the USEPA approved Sampling and Analysis Plan (SAP) (O'Brien & Gere, 2009) and the PMP. Additional details on field methods are provided in *Groundwater IRM, Quarterly Groundwater Monitoring Report – 3rd Qtr – 2012* (O'Brien & Gere, 2013).

Field quality control (QC) samples included trip blanks, field duplicates, and matrix spike/matrix spike duplicates (MS/MSDs). The QC samples were prepared in accordance with Section 3.3 of the SAP, using the frequencies specified in the Quality Assurance Project Plan (QAPP) tables contained in the SAP. Laboratory QA measures are identified in the SAP.

### 3. SUMMARY OF MONITORING RESULTS

Groundwater monitoring during the First Quarter 2014 consisted of the collection and analysis of groundwater level and quality data to evaluate the occurrence of cross-contamination and significant short-term anomalies. A summary of the performance monitoring assessment is presented in Table 1 and additional details are provided below.

An electronic copy of the laboratory analytical report is included in the attached CD. The laboratory analytical results for VOCs underwent Level A data review and verification by O'Brien & Gere (Appendix A).

#### 3.1 GROUNDWATER PUMPING SYSTEM

- The overall IRM system average flow rate was 240 gallons per minute (gpm) and the run-time was approximately 98.1%. Extraction well average flow rates and durations for the First Quarter 2014 include:
  - » Perched Zone – 13 gpm (EW-6P) to 54 gpm (EW-2P) – The pumps in extraction wells EW-4P and EW-6P went out of service at the beginning of the First Quarter 2014, and both pumps are scheduled for repair/replacement in April 2014
  - » USG – 21 gpm (EW-7S)
  - » LSG – 49 gpm (EW-3D and EW-8D)

#### 3.2 GROUNDWATER ELEVATIONS

- Groundwater elevation data were used to create hydrographs (Figures 5 through 7) and calculate vertical hydraulic gradients between select nested wells for trend and statistical analysis. The results of these analyses were used to evaluate the occurrence of cross-contamination and equilibrium conditions (as summarized in Table 1) as well as estimate the capture zone of each extraction well(s)(Figures 2 through 4).

#### 3.3 GROUNDWATER QUALITY

- Groundwater quality data for First Quarter 2014 are provided in Table 4. Groundwater quality data were summarized via time-series analyses for individual and nested monitoring wells (Figures 8 through 10). In addition, statistical analyses were conducted to assess pumping risk associated with vertical and/or lateral cross-contamination (Table 5). Except for well AF-11S, groundwater quality data and associated intrawell statistical analyses do not show significant trends or triggers in VOC concentrations indicative of cross-contamination.
  - » AF-11S had shown decreasing cis 1,2-DCE and VC concentrations since peaking in April 2012. However, concentrations have increased during First Quarter 2014 to pre-IRM startup concentrations (Figure 9) and statistical analysis for cross-contamination was triggered for the TCE Group (Table 5). VOC concentrations will continue to be monitored to evaluate whether concentration increases may be due to a change in groundwater flow direction related to the reduction in EW-7S pumping.
- Groundwater quality data for extraction wells and IRM system influent samples indicate steady or decreasing concentrations of CVOCs (Figure 11) and a statistical analysis of this data indicates IRM pumping should continue.

#### 4. REFERENCES

- O'Brien & Gere, 2009. Sampling and Analysis Plan. General Electric Company, Evendale, Ohio. June 2009.
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***Tables***

Table 1

GE OHD 000 817 312  
 GE Aviation\_Evendale, Ohio - Groundwater IRM  
 Summary of Performance Monitoring Assessment - 1Q-14

	PRIMARY DATA GROUP	KEY QUESTIONS	YES	NO	COMMENTS
GROUNDWATER ELEVATIONS	Hydrographs/Trends	Significant trends identified?			Background groundwater levels relatively flat during 1Q-14
		Perched	✓		Mid-February recovery due to approximately 1-inch rainfall and EW-4P shutdown
		USG	✓		
		LSG	✓		
		Depression of water levels maintained?	✓		
	Vertical Gradients	Active pumping maintaining gradient reversal?	✓		AF-4P/S and AF-7P/S maintained; AF-11S/D and OSMW-4S/D maintained
		<b>Statistically significant increasing (downward vertical) trends?</b>	✓		
	Equilibrium/Capture Zones	<b>Steady state/equilibrium maintained?</b>	✓		
		<b>Capture zone maintained at or near design?</b>	✓		
GROUNDWATER QUALITY	Chemical Trends	Significant trends identified?			
		Perched	✓		AF-24P, AF-25P - VOC increases associated with plume movement/IRM pumping
		USG	✓		AF-11S - increasing cis-1,2-DCE and VC to pre-IRM startup concentrations
		LSG	✓		AF-11D - continue monitoring recent ORP increase from -302mv to -128mv
		<b>Field bioparameters - indicative of cross-contamination?</b>	✓		
		<b>Field bioparameters - reduced biodegradation effectiveness?</b>	✓		
	Vertical Cross-Contamination	<b>Nested wells - vertical cross-contamination?</b>	✓		AF-11S - increasing cis-1,2-DCE and VC triggered UTL exceedance for TCE_group
	Lateral Cross-Contamination	<b>Potential off-site sources inhibiting remediation?</b>	✓		
	Influent Concentrations	Significant trends identified?	✓		
		<b>Statistical trends - Stable (no significant trends)?</b>	✓		
Note		<b>Is continued pumping beneficial?</b>	✓		
		<b>Statistical trends - Decreasing (significant negative trend)?</b>	✓		
		<b>Optimize or re-evaluate?</b>	✓		
Key questions in <b>BOLD</b> are PMP Problem Study Questions					

Table 2

GE OHD 000 817 312

GE Aviation Evendale, Ohio - Groundwater IRM  
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring				Transducer <sup>3</sup>	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) <sup>4</sup>
	Hydraulic Control Monitoring	Progress Monitoring <sup>1</sup>	Semiannual Monitoring <sup>2</sup>								Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
<b>Perched</b>															
	AF-2P	AF-2P	AF-2P			456379.19	1418008.71	562.10	563.39	2.00	28.00	534.10	33.00	529.10	34.46
			AF-3P			456297.40	1417884.19	560.40	561.82	2.00	21.00	539.40	31.00	529.40	32.42
	AF-4P	AF-4P		T	456180.93	1417877.42	560.40	561.90	2.00	24.50	535.90	34.50	525.90	36.21	
	AF-5P	AF-5P	AF-5P		455882.90	1417831.43	559.80	561.22	2.00	28.00	531.80	33.00	526.80	34.75	
	AF-6P	AF-6P			456059.85	1417402.52	559.80	561.68	2.00	27.70	532.10	32.70	527.10	35.34	
	AF-7P	AF-7P	AF-7P	T	455478.24	1417577.30	559.80	561.21	2.00	31.50	528.30	36.50	523.30	37.43	
	AF-10P	AF-10P			456127.64	1416977.53	559.90	561.48	2.00	17.40	542.50	22.40	537.50	23.68	
	AF-12P	AF-12P			456295.77	1416183.22	574.20	575.05	2.00	14.50	559.70	19.50	554.70	20.78	
	AF-13P	AF-13P			456494.02	1416526.13	565.40	566.82	2.00	35.37	530.03	45.37	520.03	32.45	
		AF-14P			456528.73	1416790.19	559.53	558.54	2.00	17.50	542.03	27.50	532.03	28.92	
	AF-23P	AF-23P	AF-23P		457010.00	1417595.00	560.00	559.75	2.00	22.88	537.12	32.88	527.12	32.15	
	AF-24P		AF-24P		456451.17	1417576.18	559.82	558.89	2.00	26.23	533.59	36.23	523.59	35.40	
	AF-25P	AF-25P	AF-25P	T	456074.92	1417500.43	558.40	558.08	2.00	23.27	535.13	33.27	525.13	33.10	
	AF-26P				456122.18	1417674.94	558.30	557.78	2.00	30.96	527.34	40.96	517.34	35.44	
			AOC LDMW-1S		457924.00	1417429.00	556.20	555.81	2.00	13.29	542.91	23.29	532.91	22.90	
			AOC PSTMW-1SR		459022.76	1417784.33	556.91		2.00						
			AOC PSTMW-2S		458993.37	1417998.15	559.90	559.70	2.00	18.50	541.40	28.50	531.40	24.50	
	GM-3P				457074.62	1418304.17	559.50	559.24	2.00	19.30	540.20	29.30	530.20	29.3 <sup>5</sup>	
	GM-9P	GM-9P		T	457104.10	1417217.11	560.30	559.95	2.00	18.00	542.30	28.00	532.30	27.65	
			H-221		454547.97	1417264.66	554.70	554.37	2.00	20.00	534.70	30.00	524.70	28.65	
	OSMW-1P	OSMW-1P	OSMW-1P	T	455078.23	1417736.02	551.50	554.09	2.00	20.00	531.50	30.00	521.50	32.53	
	OSMW-2P	OSMW-2P	OSMW-2P		455601.82	1417822.50	554.80	557.01	2.00	27.00	527.80	37.00	517.80	38.87	
	OSMW-10P	OSMW-10P		T	455020.27	1417400.34	555.82	558.57	2.00	20.00	535.82	30.00	525.82	32.57	
	OSMW-11P	OSMW-11P			455459.30	1418006.45	552.04	551.71	2.00	13.00	539.04	23.00	529.04	22.93	
	OSMW-12P				455880.25	1418332.91	553.66	553.35	2.00	14.70	538.96	24.70	528.96	24.63	
	OW-1P				455883.50	1417685.55	559.42	559.75	2.00	30.00	529.42	35.00	524.42	35 <sup>5</sup>	
	PMW-3P	PMW-3P		T	455249.65	1417470.90	557.41	560.10	2.00	16.00	541.41	26.00	531.41	29.07	
	PMW-5P	PMW-5P			1417293.42	455489.81	559.11	558.71	2.00	20.15	538.96	30.15	528.96	29.75	
	PMW-6P	PMW-6P			1417456.08	455769.69	561.50	561.10	2.00	28.57	532.93	38.57	522.93	38.17	
	TMW-1P	TMW-1P		T	455737.69	1417702.75	559.77	562.12	2.00	22.00	537.77	32.00	527.77	33.84	
	TMW-2P	TMW-2P			455595.65	1416931.21	556.94	559.71	2.00	28.50	528.44	33.50	523.44	38.45	

See notes on page 3.

**Table 2**

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**GE Aviation Evendale, Ohio - Groundwater IRM**  
**Well Completion Data - Groundwater Level Monitoring**

Water-Bearing Zone	Well ID - Groundwater Level Monitoring				Transducer <sup>3</sup>	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) <sup>4</sup>
	Hydraulic Control Monitoring	Progress Monitoring <sup>1</sup>	Semiannual Monitoring <sup>2</sup>								Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
<b>USG</b>															
AF-4S	AF-4S			T	456183.67	1417879.81	560.30	562.22	2.00	43.00	517.30	53.00	507.30	54.03	
AF-5S	AF-5S	AF-5S			455887.32	1417833.15	559.60	561.60	2.00	41.00	518.60	51.00	508.60	51.92	
AF-6S	AF-6S				456056.40	1417402.71	560.10	562.67	2.00	41.00	519.10	51.00	509.10	52.80	
AF-7S	AF-7S	AF-7S	T	455482.27	1417577.68	559.70	562.02	2.00	45.00	514.70	55.00	504.70	56.68		
AF-8S	AF-8S				455524.80	1417088.16	559.10	561.08	2.00	50.00	509.10	50.00	499.10	60.00	
AF-9S	AF-9S	AF-9S	T	455790.53	1416793.04	562.00	564.19	2.00	50.00	512.00	60.00	502.00	61.75		
AF-10S	AF-10S				456134.19	1416979.21	559.90	561.98	2.00	61.00	498.90	71.00	488.90	67.75	
AF-11S	AF-11S		T	456094.23	1416577.99	564.70	565.20	2.00	53.00	511.70	63.00	501.70	63.27		
AF-12S	AF-12S				456295.87	1416186.19	574.00	575.41	2.00	64.00	510.00	74.00	500.00	72.31	
AF-13S	AF-13S				456488.94	1416522.95	565.20	567.91	2.00	46.50	518.70	56.50	508.70	56.5 <sup>5</sup>	
AF-14S	AF-14S				456526.22	1416788.87	559.50	558.56	2.00	56.50	503.00	66.50	493.00	66.5 <sup>5</sup>	
AF-19S	AF-19S		T	455823.23	1417037.78	561.60	563.87	2.00	52.40	509.20	62.40	499.20	64.65		
AF-20S	AF-20S				455927.77	1416940.35	559.80	562.47	2.00	59.00	500.80	69.00	490.80	71.57	
GM-9S	GM-9S		T	457108.81	1417214.23	561.00	560.13	2.00	43.00	518.00	53.00	508.00	52.09		
OSMW-1S	OSMW-1S	OSMW-1S	T	455082.59	1417738.59	551.50	554.14	2.00	41.00	510.50	51.00	500.50	52.84		
OSMW-3S	OSMW-3S	OSMW-3S	T	455309.01	1417107.64	557.10	559.91	2.00	54.00	503.10	64.00	493.10	66.60		
OSMW-4S	OSMW-4S	OSMW-4S	T	456144.10	1416386.57	565.50	565.10	2.00	65.00	500.50	75.00	490.50	75.84		
					453589.27	1416137.49	576.70	576.44	2.00	63.80	512.90	73.80	502.90	73.54	
					455149.40	1416267.11	586.61	586.38	2.00	80.00	506.61	90.00	496.61	88.78	
					454625.51	1415147.34	584.64	584.33	2.00	77.41	507.23	87.41	497.23	86.70	
OSMW-9S	OSMW-9S				455705.63	1415409.73	594.66	594.37	2.00	88.80	505.86	98.80	495.86	101.30	
OSMW-10S	OSMW-10S		T	455019.93	1417400.39	555.82	558.59	2.00	47.20	508.62	57.20	498.62	58.20		
OSMW-11S	OSMW-11S				455459.42	1418006.57	552.04	551.64	2.00	37.25	514.79	47.25	504.79	47.20	
PMW-3S	PMW-3S		T	455249.82	1417470.89	557.41	560.12	2.00	44.80	512.61	54.80	502.61	57.40		
TMW-1S	TMW-1S	TMW-1S	T	455739.88	1417703.19	559.78	561.63	2.00	48.30	511.48	58.30	501.48	59.75		
TMW-2S	TMW-2S	TMW-2S		455597.25	1416929.92	557.01	560.15	2.00	40.00	517.01	50.00	507.01	53.08		

See notes on page 3.

Table 2

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GE Aviation Evendale, Ohio - Groundwater IRM  
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer <sup>3</sup>	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) <sup>4</sup>
	Hydraulic Control Monitoring	Progress Monitoring <sup>1</sup>	Semiannual Monitoring <sup>2</sup>							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
<b>LSG</b>														
	AF-1D				456927.14	1417977.19	559.80	559.78	4.00	108.00	451.80	118.00	441.80	118.00
	AF-5D		AF-5D		455889.87	1417834.37	559.50	561.66	2.00	100.00	459.50	110.00	449.50	108.1
	AF-7D	AF-7D	AF-7D	T	455489.28	1417578.92	559.70	561.23	4.00	109.00	450.70	119.00	440.70	118.77
	AF-8D				455517.69	1417091.88	559.00	560.73	4.00	86.00	473.00	96.00	463.00	93.72
	AF-9D	AF-9D		T	455794.33	1416786.95	562.20	563.93	4.00	78.00	484.20	88.00	474.20	93.30
	AF-11D	AF-11D		T	456087.97	1416583.70	564.90	566.27	4.00	92.00	472.90	102.00	462.90	101.79
	AF-12D	AF-12D			456297.35	1416191.94	573.30	575.45	4.00	102.00	471.30	112.00	461.30	111.85
	AF-15D	AF-15D			456991.44	1416851.88	559.80	560.95	4.00	103.00	456.80	113.00	446.80	112.86
	AF-16D				457003.87	1417280.19	560.40	561.83	4.00	91.00	469.40	101.00	459.40	102.57
	AF-17D	AF-17D			456484.75	1417467.78	560.30	561.37	4.00	90.00	470.30	100.00	460.30	99.48
	AF-19D	AF-19D		T	455818.36	1417039.55	561.70	564.10	2.00	81.20	480.50	91.20	470.50	93.40
	AF-20D	AF-20D			455933.76	1416941.09	559.80	562.52	2.00	81.10	478.70	91.10	468.70	93.56
	AF-21D	AF-21D	AF-21D		455941.03	1416777.12	560.00	559.61	2.00	80.00	480.00	90.00	470.00	90.11
	GM-3D				457163.25	1418266.08	560.80	562.47	4.00	138.00	422.80	148.00	412.80	148.00
	GM-5D				457241.00	1416754.00	562.00	564.07	4.00	126.43	455.57	116.43	445.57	116.75 <sup>5</sup>
	GM-9D	GM-9D		T	457107.93	1417219.35	561.00	560.06	4.00	100.00	461.00	110.00	451.00	109.30
	H-223	H-223			454519.10	1417253.00	555.00	555.60	2.00	154.50	400.50	164.50	390.50	161.51
	OSMW-1D	OSMW-1D	OSMW-1D	T	455082.67	1417738.40	551.10	554.16	2.00	80.00	471.10	90.00	461.10	92.75
	OSMW-3D	OSMW-3D	OSMW-3D	T	455309.10	1417107.28	557.10	559.91	2.00	131.00	426.10	141.00	416.10	143.31
	OSMW-4D	OSMW-4D	OSMW-4D	T	456143.93	1416386.96	565.50	565.14	2.00	127.00	438.50	137.00	428.50	135.94
			OSMW-5D		452875.51	1416398.42	560.53	560.25	2.00	121.00	439.53	131.00	429.53	130.72
	OSMW-6D	OSMW-6D	OSMW-6D		455147.40	1416265.11	586.38	586.08	2.00	149.77	436.61	159.77	426.61	162.20
	OSMW-7D	OSMW-7D	OSMW-7D		456711.82	1415686.05	592.44	592.09	2.00	141.00	451.44	151.00	441.44	148.80
			OSMW-8D		454625.45	1415147.03	584.64	584.34	2.00	175.30	409.34	185.30	399.34	187.20
	OSMW-9D	OSMW-9D			455705.86	1415409.84	594.66	594.39	2.00	166.00	428.66	176.00	418.66	175.60
	OSMW-10D	OSMW-10D		T	455020.11	1417400.16	555.82	558.61	2.00	130.00	425.82	140.00	415.82	142.63
	OSMW-11D				455459.26	1418006.71	552.04	551.72	2.00	81.00	471.04	91.00	461.04	90.30
	OSMW-11DD				455459.02	1418006.62	552.04	551.68	2.00	140.00	412.04	150.00	402.04	149.83
	OSMW-12D				455880.20	1418333.14	553.66	553.29	2.00	123.00	430.66	133.00	420.66	133.76
	OSMW-12DD				455880.36	1418333.21	553.66	553.18	2.00	141.00	412.66	151.00	402.66	149.20
	OSMW-13D				455241.33	1417853.92	552.03	551.82	2.00	96.00	456.03	106.00	446.03	103.65
	OSMW-13DD				455241.62	1417854.06	552.03	551.70	2.00	142.00	410.03	152.00	400.03	151.84
	OW-3D				455360.77	1417112.74	557.72	557.43	2.00	135.00	422.72	140.00	417.72	140 <sup>5</sup>
	OW-4D				455422.91	1417165.94	559.68	559.41	2.00	135.00	424.68	140.00	419.68	140 <sup>5</sup>
	PMW-2D	PMW-2D			456024.30	1417902.40	560.05	562.47	2.00	125.00	435.05	135.00	425.05	139.70
	PMW-3D	PMW-3D		T	455249.80	1417471.07	557.41	560.04	2.00	126.00	431.41	136.00	421.41	139.75
	PMW-4D	PMW-4D			456424.32	1416617.44	564.33	567.25	2.00	130.00	434.33	140.00	424.33	142.51
	TMW-1D		TMW-1D		455740.26	1417702.92	559.78	562.02	2.00	94.30	465.48	104.30	455.48	106.45
	TMW-2D	TMW-2D	TMW-2D		455597.15	1416930.07	557.01	559.86	2.00	117.30	439.71	127.30	429.71	129.32

## Notes

<sup>1</sup> Quarterly Progress Monitoring in the Perched, USG and LSG.<sup>2</sup> Semiannual sampling occurs in the second and fourth quarters.<sup>3</sup> T = Transducer; Blank = Manual.<sup>4</sup> Total depths from ground surface (GM-3P, OW-1P, AF-13S, AF-14S, GM-5D, OW-3D, OW-4D)

**Table 3**

**GE OHD 000 817 312**  
**GE Aviation Evendale, Ohio - Groundwater IRM**  
**Well Completion Data - Groundwater Quality Monitoring**

Water-Bearing Zone	Well ID - VOC Sampling			Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter	Well Screen				Total Depth (ft bTOC) <sup>3</sup>
	Hydraulic Control Monitoring	Progress Monitoring <sup>1</sup>	Semiannual Monitoring <sup>2</sup>						Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
<b>Perched</b>													
			AF-2P	456379.19	1418008.71	562.10	563.39	2.00	28.00	534.10	33.00	529.10	34.46
			AF-3P	456297.40	1417884.19	560.40	561.82	2.00	21.00	539.40	31.00	529.40	32.42
AF-4P	AF-4P			456180.93	1417877.42	560.40	561.90	2.00	24.50	535.90	34.50	525.90	36.21
AF-7P	AF-7P	AF-5P	AF-5P	455882.90	1417831.43	559.80	561.22	2.00	28.00	531.80	33.00	526.80	34.75
AF-13P	AF-13P			456494.02	1416526.13	565.40	566.82	2.00	3.13	562.27	13.13	552.27	15.4 <sup>3</sup>
			AF-23P	457010.00	1417595.00	560.00	559.75	2.00	22.88	537.12	32.88	527.12	32.15
			AF-24P	456451.17	1417576.18	559.82	558.89	2.00	26.23	533.59	36.23	523.59	35.40
AF-25P	AF-25P	AF-25P		456074.92	1417500.43	558.40	558.08	2.00	23.27	535.13	33.27	525.13	33.10
			AOC LDMW-1S	457924.00	1417429.00	556.20	555.81	2.00	13.29	542.91	23.29	532.91	22.90
			AOC PSTMW-1SR	459022.76	1417784.33	556.91		2.00					
			AOC PSTMW-2S	458993.37	1417998.15	559.90	559.70	2.00	18.50	541.40	28.50	531.40	24.50
			H-221	454547.97	1417264.66	554.70	554.37	2.00	20.00	534.70	30.00	524.70	28.65
	OSMW-1P	OSMW-1P		455078.23	1417736.02	551.50	554.09	2.00	20.00	531.50	30.00	521.50	32.53
		OSMW-2P		455601.82	1417822.50	554.80	557.01	2.00	27.00	527.80	37.00	517.80	38.87
	OSMW-10P			455020.27	1417400.34	555.82	558.57	2.00	20.00	535.82	30.00	525.82	32.57
	OSMW-11P			455459.30	1418006.45	552.04	551.71	2.00	13.00	539.04	23.00	529.04	22.93
	OSMW-12P			455880.25	1418332.91	553.66	553.35	2.00	14.70	538.96	24.70	528.96	24.63
	OSMW-13P			455241.47	1417854.22	552.03	551.75	2.00	22.00	530.03	32.00	520.03	32.45
PMW-3P	PMW-3P			455249.65	1417470.90	557.41	560.10	2.00	16.00	541.41	26.00	531.41	29.07
TMW-1P	TMW-1P			455737.69	1417702.75	559.77	562.12	2.00	22.00	537.77	32.00	527.77	33.84
<b>USG</b>													
	AF-4S	AF-4S		456183.67	1417879.81	560.30	562.22	2.00	43.00	517.30	53.00	507.30	54.03
		AF-5S	AF-5S	455887.32	1417833.15	559.60	561.60	2.00	41.00	518.60	51.00	508.60	51.92
AF-6S	AF-6S			456056.4	1417402.71	560.10	562.67	2.00	41.00	519.10	51.00	509.10	52.80
AF-7S	AF-7S	AF-7S	AF-7S	455482.27	1417577.68	559.70	562.02	2.00	45.00	514.70	55.00	504.70	56.68
AF-9S	AF-9S	AF-9S	AF-9S	455790.53	1416793.04	562.00	564.19	2.00	50.00	512.00	60.00	502.00	61.75
AF-11S	AF-11S	AF-11S		456094.23	1416577.99	564.70	565.20	2.00	53.00	511.70	63.00	501.70	63.27
AF-13S	AF-13S			456488.94	1416522.95	565.20	567.91	2.00	45.60	519.60	55.60	509.60	55.6 <sup>3</sup>
AF-19S	AF-19S			455823.23	1417037.78	561.60	563.87	2.00	52.40	509.20	62.40	499.20	64.65
OSMW-1S	OSMW-1S	OSMW-1S	OSMW-1S	455082.59	1417738.59	551.50	554.14	2.00	41.00	510.50	51.00	500.50	52.84
OSMW-3S	OSMW-3S	OSMW-3S	OSMW-3S	455309.01	1417107.64	557.10	559.91	2.00	54.00	503.10	64.00	493.10	66.60
OSMW-4S	OSMW-4S	OSMW-4S	OSMW-4S	456144.10	1416386.57	565.50	565.10	2.00	65.00	500.50	75.00	490.50	75.84
			OSMW-5S	453589.27	1416137.49	576.70	576.44	2.00	63.80	512.90	73.80	502.90	73.54
			OSMW-6S	455149.40	1416267.11	586.61	586.38	2.00	80.00	506.61	90.00	496.61	88.78
			OSMW-8S	454625.51	1415147.34	584.64	584.33	2.00	77.41	507.23	87.41	497.23	86.70
		OSMW-9S		455705.63	1415409.73	594.66	594.37	2.00	88.80	505.86	98.80	495.86	101.30
		OSMW-10S		455019.93	1417400.39	555.82	558.59	2.00	47.20	508.62	57.20	498.62	58.20
		OSMW-11S		455459.42	1418006.57	552.04	551.64	2.00	37.25	514.79	47.25	504.79	47.20
PMW-3S	PMW-3S			455249.82	1417470.89	557.41	560.12	2.00	44.80	512.61	54.80	502.61	57.40
TMW-1S	TMW-1S	TMW-1S		455739.88	1417703.19	559.78	561.63	2.00	48.30	511.48	58.30	501.48	59.75
TMW-2S	TMW-2S	TMW-2S		455597.25	1416929.92	557.01	560.15	2.00	40.00	517.01	50.00	507.01	53.08

See notes on page 2.

**Table 3**

**GE OHD 000 817 312**  
**GE Aviation Evendale, Ohio - Groundwater IRM**  
**Well Completion Data - Groundwater Quality Monitoring**

Water-Bearing Zone	Well ID - VOC Sampling			Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter	Well Screen				Total Depth (ft bTOC) <sup>3</sup>
	Hydraulic Control Monitoring	Progress Monitoring <sup>1</sup>	Semiannual Monitoring <sup>2</sup>						Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
<b>LSG</b>													
			AF-5D	455889.87	1417834.37	559.50	561.66	2.00	100.00	459.50	110.00	449.50	108.10
AF-7D	AF-7D	AF-7D	455489.28	1417578.92	559.70	561.23	4.00	109.00	450.70	119.00	440.70	118.77	
AF-9D			455794.33	1416786.95	562.20	563.93	4.00	78.00	484.20	88.00	474.20	93.30	
AF-11D	AF-11D		456087.97	1416583.70	564.90	566.27	4.00	92.00	472.90	102.00	462.90	101.79	
AF-19D	AF-19D		455818.36	1417039.55	561.70	564.10	2.00	81.20	480.50	91.20	470.50	93.40	
		AF-21D	455941.03	1416777.12	560.00	559.61	2.00	80.00	480.00	90.00	470.00	90.11	
OSMW-1D	OSMW-1D	OSMW-1D	455082.67	1417738.40	551.10	554.16	2.00	80.00	471.10	90.00	461.10	92.75	
OSMW-3D	OSMW-3D	OSMW-3D	455309.10	1417107.28	557.10	559.91	2.00	131.00	426.10	141.00	416.10	143.31	
OSMW-4D	OSMW-4D	OSMW-4D	456143.93	1416386.96	565.50	565.14	2.00	127.00	438.50	137.00	428.50	135.94	
		OSMW-5D	452875.51	1416398.42	560.53	560.25	2.00	121.00	439.53	131.00	429.53	130.72	
		OSMW-6D	455147.40	1416265.11	586.38	586.08	2.00	149.77	436.61	159.77	426.61	162.20	
		OSMW-7D	456711.82	1415686.05	592.44	592.09	2.00	141.00	451.44	151.00	441.44	148.80	
		OSMW-8D	454625.45	1415147.03	584.64	584.34	2.00	175.30	409.34	185.30	399.34	187.20	
OSMW-9D	OSMW-9D		455705.86	1415409.84	594.66	594.39	2.00	166.00	428.66	176.00	418.66	175.60	
OSMW-10D	OSMW-10D		455020.11	1417400.16	555.82	558.61	2.00	130.00	425.82	140.00	415.82	142.63	
		OSMW-11D		455459.26	1418006.71	552.04	551.72	2.00	81.00	471.04	91.00	461.04	90.30
		PMW-2D		456024.30	1417902.40	560.05	562.47	2.00	125.00	435.05	135.00	425.05	139.70
PMW-3D	PMW-3D			455249.80	1417471.07	557.41	560.04	2.00	126.00	431.41	136.00	421.41	139.75
PMW-4D	PMW-4D			456424.32	1416617.44	564.33	567.25	2.00	130.00	434.33	140.00	424.33	142.51
	TMW-1D	TMW-1D	455740.26	1417702.92	559.78	562.02	2.00	94.30	465.48	104.30	455.48	106.45	
TMW-2D	TMW-2D	TMW-2D	455597.15	1416930.07	557.01	559.86	2.00	117.30	439.71	127.30	429.71	129.32	

Notes

<sup>1</sup> Quarterly Progress Monitoring in the Perched, USG and LSG.<sup>2</sup> Semiannual sampling occurs in the second and fourth quarters.<sup>3</sup> Total depths from ground surface (GM-3P, OW-1P, AF-13S, AF-14S, GM-5D, OW-3D, OW-4D).

Table 4

**GE OHD 000 817 312**  
**GE Aviation\_Evendale, Ohio - Groundwater IRM**  
**Summary of Groundwater Sampling Results (1Q-14) - Detected Parameters Only**

Location Sample Date	AF-11D 3/13/2014	AF-11S 3/13/2014	AF-13P 3/13/2014	AF-13S 3/13/2014	AF-19D 3/13/2014	AF-19S 3/13/2014	AF-25P 3/13/2014	AF-4P 3/11/2014	AF-4S 3/11/2014	AF-5P 3/11/2014	AF-5S 3/11/2014	AF-6S 3/13/2014	AF-7D 3/11/2014	
FIELD PARAMETERS	units													
pH	S.U.	7.11	7.42	6.12	6.80	7.01	7.06	7.53	7.34	7.03	7.00	6.93	7.25	7.07
Conductivity (mS/cm)	mS/cm	0.883	1.363	0.585	1.094	0.686	0.839	2.464	1.23	0.911	1.356	1.01	1.371	0.946
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DO (mg/L)	mg/L	0.54	0.85	0.21	0.18	0.09	0.21	0.71	0.72	0.63	0.19	0.11	0.10	0.21
Temperature (° c)	Deg C	16.17	16.15	11.40	16.85	15.75	17.85	18.79	17.21	16.24	16.59	16.29	18.58	14.70
ORP (mV)	mV	-128.0	-159.0	-97.0	-169.0	-130.0	-110.0	-137.0	-36.8	-167.0	-23.6	-179.9	-160.0	-154.0
DETECTABLE VOCs	units													
1,1-Trichloroethane	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	350	43	< 1	71	< 1	< 1	< 1
1,1-Dichloroethane	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	58	5.7	1.1	7.9	5.1	< 1	< 1
1,1-Dichloroethene	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	38	1.7 J	< 1	4.5	< 1	< 1	< 1
2-Butanone	ug/l	< 10	< 40	< 10	< 10	< 10	< 10	< 50	< 20	< 10	< 20	< 10	< 10	< 10
Acetone	ug/l	< 10	< 40	< 10	< 10	11	21	< 50	22	19	< 20	< 10	16	< 10
Benzene	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	< 5.0	< 2	0.75 J	< 2	0.47 J	< 1	< 1
Chloroethane	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	8.9	< 2	< 1	< 2	0.42 J	< 1	< 1
Chloroform	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	2 J	1.1 J	< 1	< 2	< 1	< 1	< 1
cis-1,2-Dichloroethene	ug/l	1.3	8.5	< 1	19	< 1	< 1	40	2	1.3	6.6	4.4	< 1	< 1
Tetrachloroethene	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	5.3	14	< 1	1.2 J	< 1	< 1	< 1
trans-1,2-Dichloroethene	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	5.7	< 2	< 1	< 2	< 1	< 1	< 1
Trichloroethene	ug/l	< 1	< 4.0	< 1	< 1	< 1	< 1	370	93	< 1	170	< 1	< 1	< 1
Vinyl Chloride	ug/l	2.3	230	< 1	< 1	< 1	17	9.2	< 2	1.4	3	46	< 1	< 1

Notes:

1) J = Estimated

2) NM = Not Measured

Table 4

**GE OHD 000 817 312**  
**GE Aviation\_Evendale, Ohio - Groundwater IRM**  
**Summary of Groundwater Sampling Results (1Q-14) - Detected Parameters Only**

Location Sample Date	AF-7P 3/11/2014	AF-7S 3/11/2014	AF-9S 3/10/2014	OSMW-10D 1/9/2014	OSMW-10D 3/11/2014	OSMW-10P 3/11/2014	OSMW-10S 1/9/2014	OSMW-10S 3/11/2014	OSMW-11D 3/10/2014	OSMW-11P 3/10/2014	OSMW-11S 3/10/2014	OSMW-12P 3/10/2014	OSMW-13P 3/11/2014				
FIELD PARAMETERS	units																
pH	S.U.	6.45	6.97	6.75	NM	7.08	6.71	NM	6.90	6.83	6.70	6.80	7.00	6.06			
Conductivity (mS/cm)	mS/cm	1.022	0.825	0.785	NM	0.932	1.505	NM	0.782	1.387	1.131	1.421	0.713	0.972			
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM			
DO (mg/L)	mg/L	1.10	0.10	1.04	NM	0.28	0.36	NM	0.19	0.72	0.88	0.84	0.94	0.55			
Temperature (° c)	Deg C	17.92	17.50	16.68	NM	14.77	17.67	NM	17.42	14.44	15.27	15.51	14.55	15.77			
ORP (mV)	mV	-120.0	-157.8	-134.4	NM	-129.9	-124.0	NM	-106.5	-89.9	-120.3	-53.8	-77.1	-117.6			
DETECTABLE VOCs	units																
1,1,1-Trichloroethane	ug/l	< 1	< 10	< 1	11	3.6	98	110	87	< 4	< 1	< 4	3.1	< 1			
1,1-Dichloroethane	ug/l	7.6	11	0.71	J	1.3	0.57	J	15	22	21	27	0.92	J			
1,1-Dichloroethene	ug/l	< 1	< 10	< 1	0.35	J	< 1	2.4	3.5	2.8	3.3	J	< 1	3.3	J	< 1	< 1
2-Butanone	ug/l	< 10	< 100	< 10	1.3	J	< 10	< 20	< 20	< 20	< 40	< 10	< 40	< 10	< 10	< 10	
Acetone	ug/l	< 10	< 100	< 10	22	5.7	J	< 20	23	7.4	J	< 40	< 10	< 40	16	16	
Benzene	ug/l	< 1	< 10	< 1	< 1	< 1	< 1	< 2	< 2	< 2	< 4	< 1	< 4	< 1	< 1	< 1	
Chloroethane	ug/l	< 1	< 10	< 1	< 1	< 1	< 1	< 2	< 2	< 2	< 4	< 1	< 4	< 1	< 1	< 1	
Chloroform	ug/l	< 1	< 10	< 1	< 1	< 1	< 1	< 2	< 2	< 2	< 4	< 1	< 4	< 1	< 1	< 1	
cis-1,2-Dichloroethene	ug/l	30	610	0.92	J	1.2	< 1	7	25	29	240	1.5	210	< 1	0.97	J	
Tetrachloroethene	ug/l	< 1	< 10	< 1	< 1	< 1	< 1	< 2	< 2	< 2	< 4	< 1	< 4	< 1	< 1	< 1	
trans-1,2-Dichloroethene	ug/l	< 1	< 10	< 1	< 1	< 1	< 1	< 2	< 2	< 2	5.4	< 1	5	< 1	< 1		
Trichloroethene	ug/l	< 1	< 10	< 1	19	5.2	130	63	45	17	< 1	59	4.2	< 1			
Vinyl Chloride	ug/l	2.9	570	7.6	1.3	1.4	< 2	17	8.6	4.4	< 1	< 4	< 1	< 1	< 1		

Notes:

1) J = Estimated

2) NM = Not Measured

Table 4

**GE OHD 000 817 312**  
**GE Aviation\_Evendale, Ohio - Groundwater IRM**  
**Summary of Groundwater Sampling Results (1Q-14) - Detected Parameters Only**

Location Sample Date	OSMW-1D 3/11/2014	OSMW-1P 3/11/2014	OSMW-1S 3/11/2014	OSMW-3D 3/11/2014	OSMW-3S 3/11/2014	OSMW-4D 3/11/2014	OSMW-4S 3/11/2014	OSMW-6D 3/10/2014	OSMW-9D 3/10/2014	OSMW-9S 3/10/2014	PMW-2D 3/13/2014	PMW-3D 1/9/2014	PMW-3D 3/11/2014				
FIELD PARAMETERS	units																
pH	S.U.	6.71	6.27	6.44	7.01	6.93	6.26	6.31	7.31	6.78	6.80	7.70	NM	6.70			
Conductivity (mS/cm)	mS/cm	1.029	1.205	1.097	0.878	0.911	0.793	0.261	0.756	0.786	3.489	0.628	NM	0.691			
Turbidity (NTUs)	NTUs	NM	nm	NM	NM	NM											
DO (mg/L)	mg/L	0.49	0.48	0.34	0.21	0.60	0.58	0.51	0.98	0.64	0.91	0.11	NM	0.15			
Temperature (° c)	Deg C	15.10	15.97	15.83	14.63	17.54	15.41	16.15	15.82	15.53	16.26	15.20	NM	14.54			
ORP (mV)	mV	-181.0	30.9	-163.1	-129.5	-148.0	-136.9	-113.5	-90.6	-131.9	-152.2	-166.0	NM	-91.9			
DETECTABLE VOCs	units																
1,1-Trichloroethane	ug/l	< 1	< 1	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	11	8.3			
1,1-Dichloroethane	ug/l	2	2.5	< 4	3.6	< 1	7.2	< 1	0.89	J	< 1	1.3	< 1	11	9.9		
1,1-Dichloroethene	ug/l	< 1	< 1	< 4	< 1	< 1	0.98	J	< 1	< 1	0.55	J	< 1	0.48	J	< 1	
2-Butanone	ug/l	< 10	< 10	< 40	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	4.1	J	< 10	
Acetone	ug/l	< 10	< 10	< 40	< 10	< 10	3.6	J	4.9	J	< 10	< 10	21	290	7.7	J	
Benzene	ug/l	< 1	< 1	< 4	1.1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.46	J	0.47	J
Chloroethane	ug/l	< 1	< 1	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Chloroform	ug/l	< 1	< 1	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
cis-1,2-Dichloroethene	ug/l	0.99	J	< 1	110	6.3	< 1	31	< 1	4.2	< 1	61	< 1	65	59		
Tetrachloroethene	ug/l	< 1	< 1	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
trans-1,2-Dichloroethene	ug/l	< 1	< 1	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	3.1	< 1	< 1	< 1		
Trichloroethene	ug/l	< 1	< 1	< 4	1.2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	11	10		
Vinyl Chloride	ug/l	16	< 1	200	3.4	< 1	38	< 1	8.5	11	73	< 1	120	69			

Notes:

1) J = Estimated

2) NM = Not Measured

Table 4

**GE OHD 000 817 312**  
**GE Aviation\_Evendale, Ohio - Groundwater IRM**  
**Summary of Groundwater Sampling Results (1Q-14) - Detected Parameters Only**

Location Sample Date	PMW-3P 3/11/2014	PMW-3S 1/9/2014	PMW-3S 3/11/2014	PMW-4D 3/13/2014	TMW-1D 3/11/2014	TMW-1P 3/11/2014	TMW-1S 3/11/2014	TMW-2D 3/13/2014	TMW-2S 3/13/2014
<b>FIELD PARAMETERS</b>	<b>units</b>								
pH	S.U.	7.02	NM	6.86	7.08	7.01	7.08	6.72	7.74
Conductivity (mS/cm)	mS/cm	1.017	NM	0.757	0.866	0.93	1.063	1.762	1.61
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM
DO (mg/L)	mg/L	0.31	NM	0.22	0.29	0.15	0.30	0.31	0.19
Temperature (°C)	Deg C	17.93	NM	17.57	16.45	14.94	17.98	16.77	16.82
ORP (mV)	mV	-56.2	NM	-111.7	-120.0	-142.3	-48.0	-164.0	-128.0
<b>DETECTABLE VOCs</b>	<b>units</b>								
1,1,1-Trichloroethane	ug/l	110	17	13	< 1	< 1	92	< 1	< 10
1,1-Dichloroethane	ug/l	15	12	8.4	< 1	< 1	43	< 1	< 10
1,1-Dichloroethene	ug/l	6.1	0.65 J	0.44 J	< 1	< 1	12	< 1	< 10
2-Butanone	ug/l	< 40	3.3 J	< 10	< 10	< 10	< 20	< 10	< 10
Acetone	ug/l	< 40	280	3.6 J	< 10	< 10	< 20	3.4 J	< 100
Benzene	ug/l	< 4	< 1	< 1	< 1	< 1	< 2	< 1	< 10
Chloroethane	ug/l	< 4	< 1	< 1	< 1	< 1	< 2	< 1	< 10
Chloroform	ug/l	< 4	0.36 J	0.4 J	< 1	< 1	< 2	< 1	< 10
cis-1,2-Dichloroethene	ug/l	240	96	81	< 1	< 1	32	2.7	580
Tetrachloroethene	ug/l	< 4	< 1	< 1	< 1	< 1	0.81 J	< 1	< 10
trans-1,2-Dichloroethene	ug/l	< 4	< 1	< 1	< 1	< 1	< 2	< 1	200
Trichloroethene	ug/l	38	32	38	< 1	< 1	170	< 1	< 10
Vinyl Chloride	ug/l	< 4	2.3	1.5	3.8	< 1	7.6	8.3	39

Notes:

1) J = Estimated

2) NM = Not Measured

Table 5

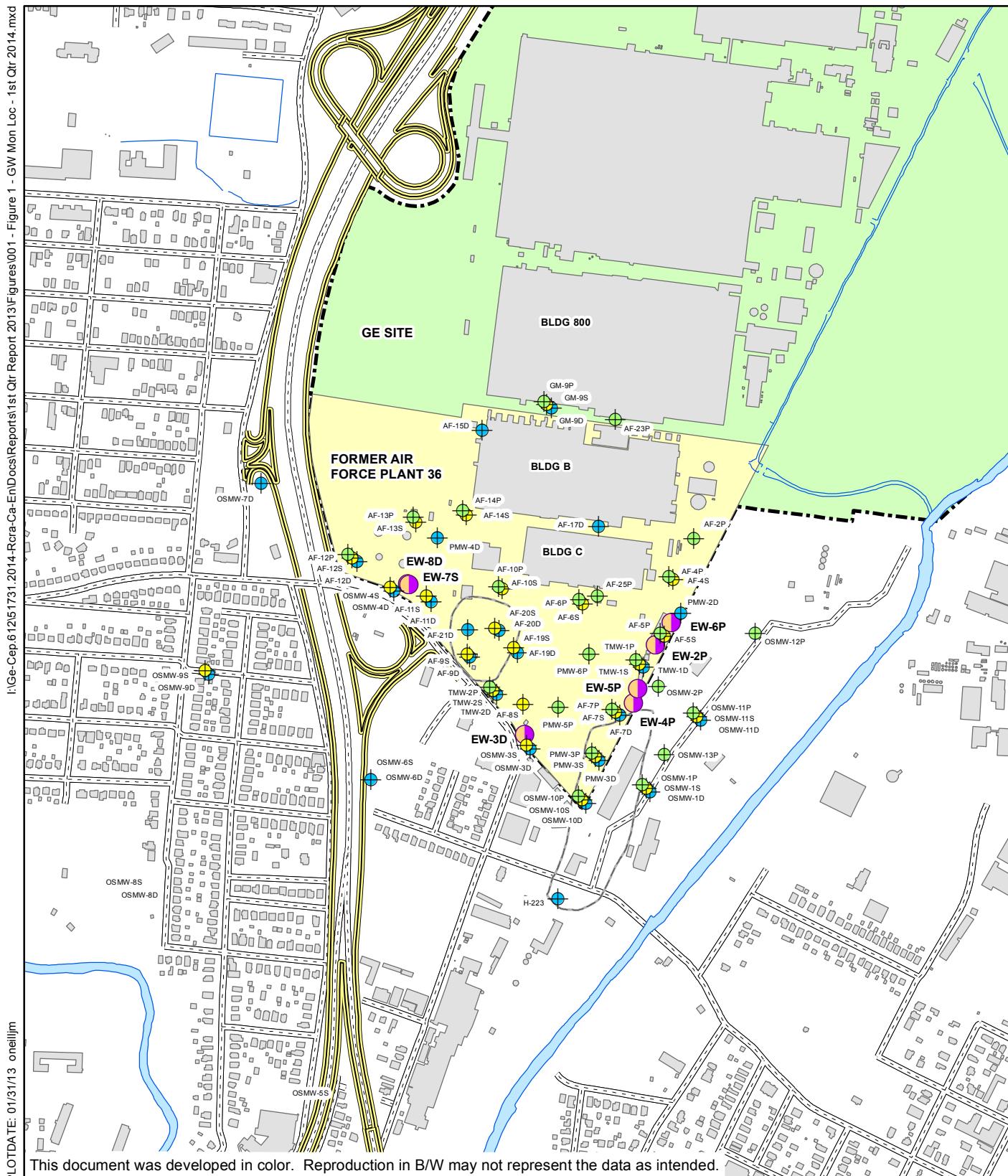
**GE OHD 000 817 312**  
**Evendale, Ohio**  
**Groundwater Chemical Cross Contamination Analyses**

Well ID	TCA_grp UTL Value <sup>1</sup> (µmol/L)	TCE_grp UTL Value <sup>1</sup> (µmol/L)	TCA Group Values (µmol/L)	TCE Group Values (µmol/L)	3/11/2013	
					TCA Group Comparison <sup>2</sup>	TCE Group Comparison <sup>2</sup>
AF-11D	0.0092	2.3875	0.0000	0.0544	ACCEPT	ACCEPT
AF-11S	.0842	3.1943	0.00	3.77	ACCEPT	REJECT
AF-13P	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-13S	0.0359	0.0359	0.00	0.20	ACCEPT	REJECT
AF-19D	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-19S	2.0047	3.6624	0.00	0.26	ACCEPT	ACCEPT
AF-25P	12.3782	11.3839	3.74	3.45	ACCEPT	ACCEPT
AF-4P	0.0359	0.0359	0.40	0.82	REJECT	REJECT
AF-4S	1.1853	5.9427	0.01	0.04	ACCEPT	ACCEPT
AF-5P	1.3739	4.5782	0.66	1.41	ACCEPT	ACCEPT
AF-5S	2.5715	9.0739	0.06	0.78	ACCEPT	ACCEPT
AF-6S	0.0359	0.0359	0.00	0.01	ACCEPT	ACCEPT
AF-7D	.0240	.0261	0.00	0.00	ACCEPT	ACCEPT
AF-7P	10.8813	9.7516	0.08	0.36	ACCEPT	ACCEPT
AF-7S	.7677	31.8240	0.11	15.41	ACCEPT	ACCEPT
AF-9S	.0694	0.7894	0.01	0.13	ACCEPT	ACCEPT
OSMW-10D	.1633	.1269	0.03	0.06	ACCEPT	ACCEPT
OSMW-10P	3.9915	2.7868	0.91	1.06	ACCEPT	ACCEPT
OSMW-10S	3.5411	1.2163	0.89	0.78	ACCEPT	ACCEPT
OSMW-11D	.7604	8.2552	0.31	2.73	ACCEPT	ACCEPT
OSMW-11P	.0232	.0066	0.01	0.02	ACCEPT	REJECT
OSMW-11S	1.0371	11.9864	0.30	2.66	ACCEPT	ACCEPT
OSMW-12P	.0529	.0352	0.04	0.03	ACCEPT	ACCEPT
OSMW-13P	.0510	.0688	0.03	0.01	ACCEPT	ACCEPT
OSMW-1D	1.0602	23.5751	0.02	0.27	ACCEPT	ACCEPT
OSMW-1P	0.0386	.0383	0.03	0.00	ACCEPT	ACCEPT
OSMW-1S	1.8189	54.1122	0.00	4.33	ACCEPT	ACCEPT
OSMW-3D	.0969	13.9650	0.04	0.13	ACCEPT	ACCEPT
OSMW-3S	0.0952	0.8117	0.00	0.00	ACCEPT	ACCEPT
OSMW-4D	.1902	1.2387	0.08	0.93	ACCEPT	ACCEPT
OSMW-4S	.1184	7.8398	0.00	0.00	ACCEPT	ACCEPT
OSMW-6D	.8025	3.8001	0.01	0.18	ACCEPT	ACCEPT
OSMW-9D	.0359	.4657	0.00	0.18	ACCEPT	ACCEPT
OSMW-9S	.0327	86.8772	0.0188	1.83	ACCEPT	ACCEPT
PMW-2D	.0021	.0359	0.00	0.00	ACCEPT	ACCEPT
PMW-3D	3.1451	2.5338	0.16	1.79	ACCEPT	ACCEPT
PMW-3P	2.5478	4.0693	1.04	2.76	ACCEPT	ACCEPT
PMW-3S	2.3156	2.3051	0.19	1.15	ACCEPT	ACCEPT
PMW-4D	.0359	.1228	0.00	0.06	ACCEPT	ACCEPT
TMW-1D	.0359	.0093	0.00	0.00	ACCEPT	ACCEPT
TMW-1P	3.1442	5.8024	1.25	1.78	ACCEPT	ACCEPT
TMW-1S	0.2465	10.57	0.00	0.16	ACCEPT	ACCEPT
TMW-2S	.0039	.0254	0.00	0.00	ACCEPT	ACCEPT

Footnotes:

1. The methodology for calculating the upper tolerance limit (UTL) is included in the Performance Monitoring Plan.
2. The introwell analysis for AF-4P (TCA and TCE Groups), AF-13S (TCE Group), and OSMW-11P (TCE Group) were triggered because the analysis compared the UTL values developed from non-detectable or low detections of baseline concentrations and is triggered by a slight increase in CVOCs and are not an indication of vertical or lateral cross-contamination.

*Figures*

**FIGURE 1****LEGEND**

- PERCHED MONITORING WELL LOCATION
- USG MONITORING WELL LOCATION
- LSG MONITORING WELL LOCATION
- EXTRATION WELL

**GE  
EVENDALE, OHIO**

## GROUNDWATER IRM MONITORING LOCATIONS

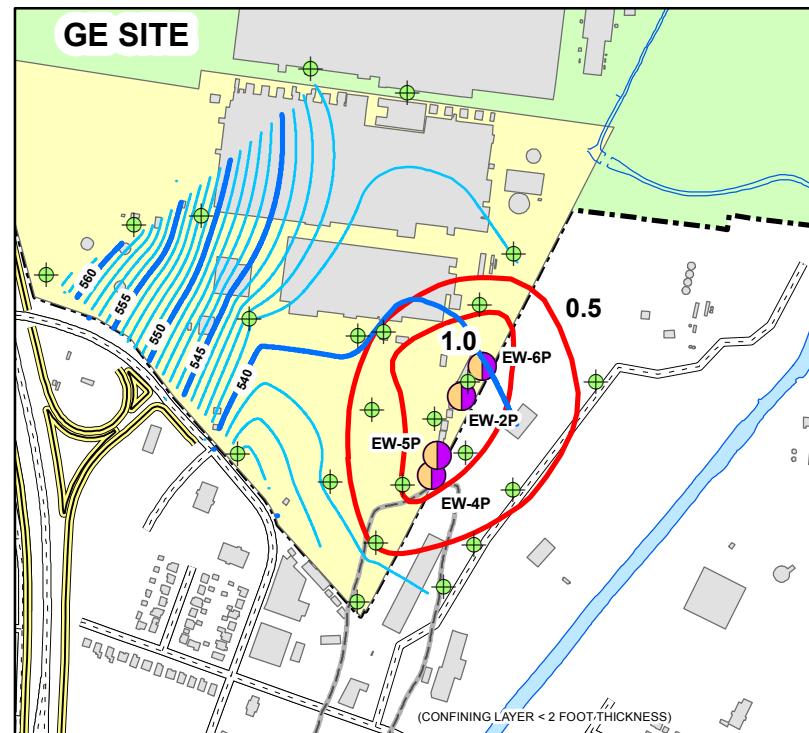
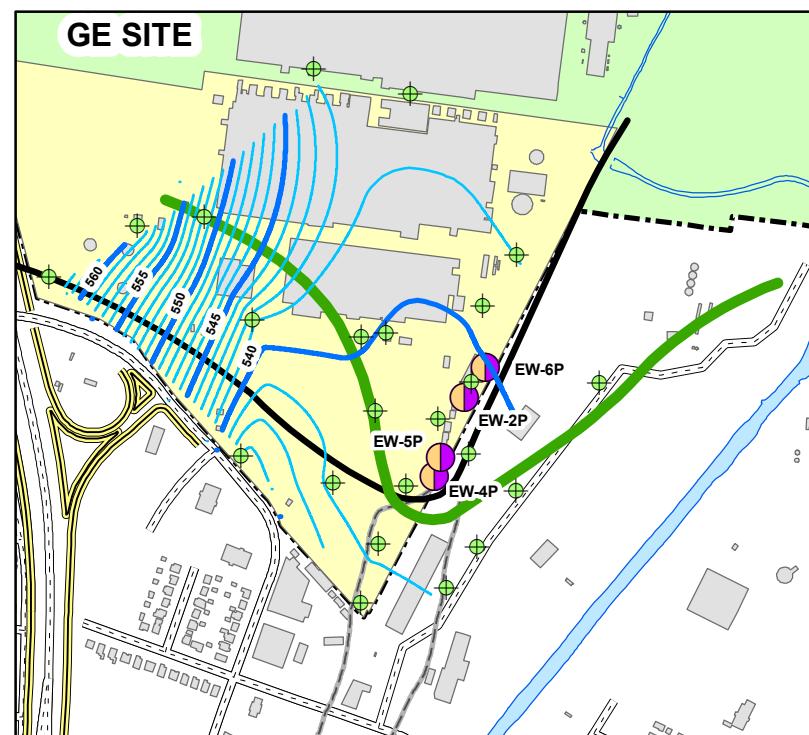
N

0 400 800 1,200 1,600  
Feet

**FIGURE 2**

I:\Ge-Cep\61251502.2014\Evendale\O&amp;M\Docs\Reports\1st Qtr Report 2014\Figures\002 - Figure 2 - Perched 1st Qtr 2014.mxd

PLOT DATE: 6/11/2014 oneilljm

**Perched Zone****Approximate Drawdown (ft)**  
**April 9, 2014***Based on Manual & Transducer Measurements***Estimated Drawdown  
(feet)** **Perched Zone****Design Capture  
Zone (320 gpm)** **Apparent Capture  
Zone (121 gpm)  
1Q 2014** 

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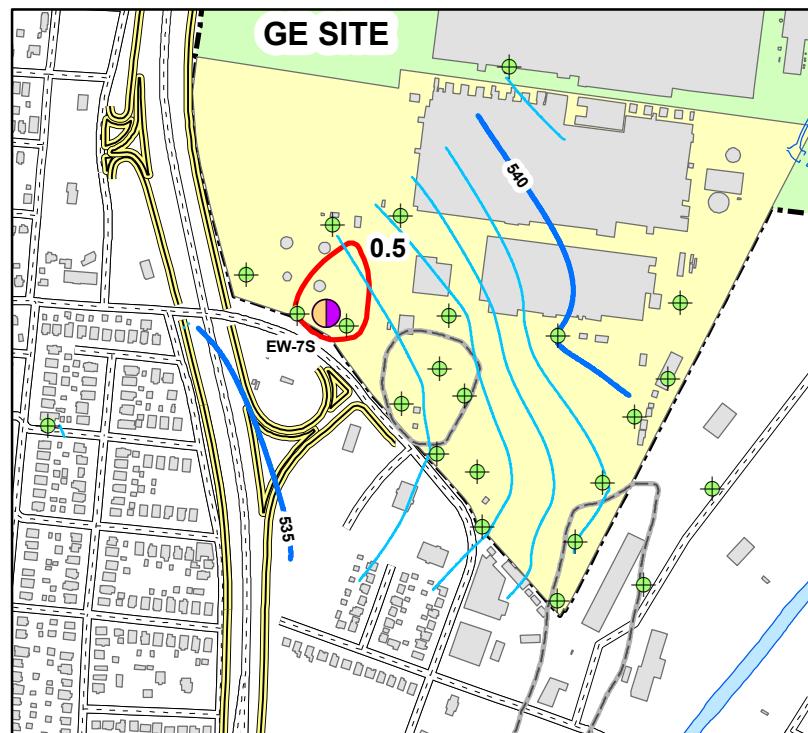
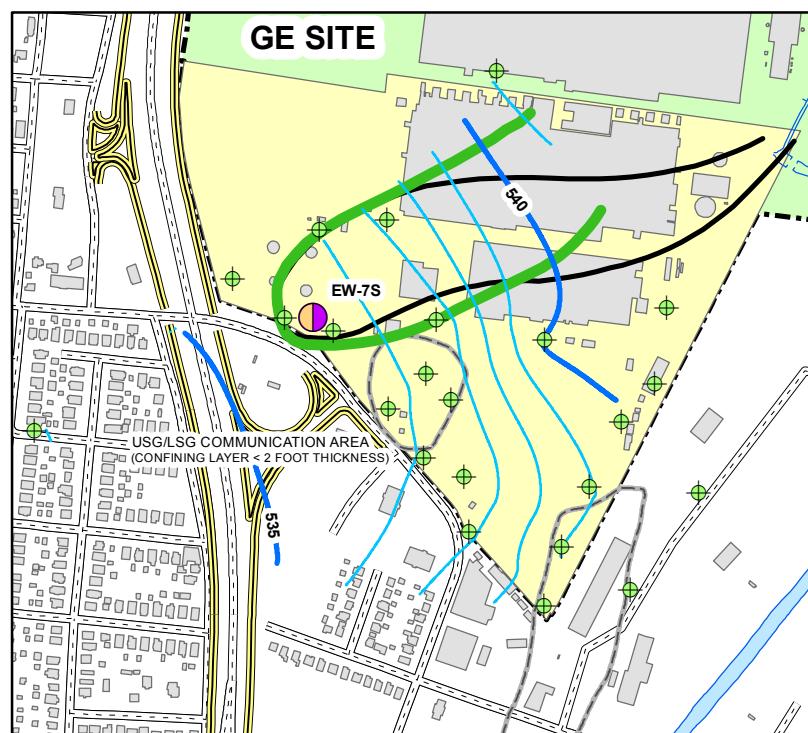
**GE  
EVENDALE, OHIO**

N

**PERCHED UNIT  
ESTIMATED DRAWDOWN  
AND CAPTURE ZONE**

**FIGURE 3**

I:\Ge-Cep.612\51502.2014 Evendale O&amp;M\Docs\Reports\1st Qtr Report 2014\Figures\003 - Figure 3 - USG - 1st Qtr 2014.mxd

**USG Zone****Approximate Drawdown (ft)**  
**April 9, 2014***Based on Manual & Transducer Measurements***Estimated Drawdown  
(feet)** **USG Zone****Design Capture  
Zone (80 gpm)** **Apparent Capture  
Zone (21 gpm)  
1Q 2014** 

PLOT DATE: 06/11/14 oneilljm

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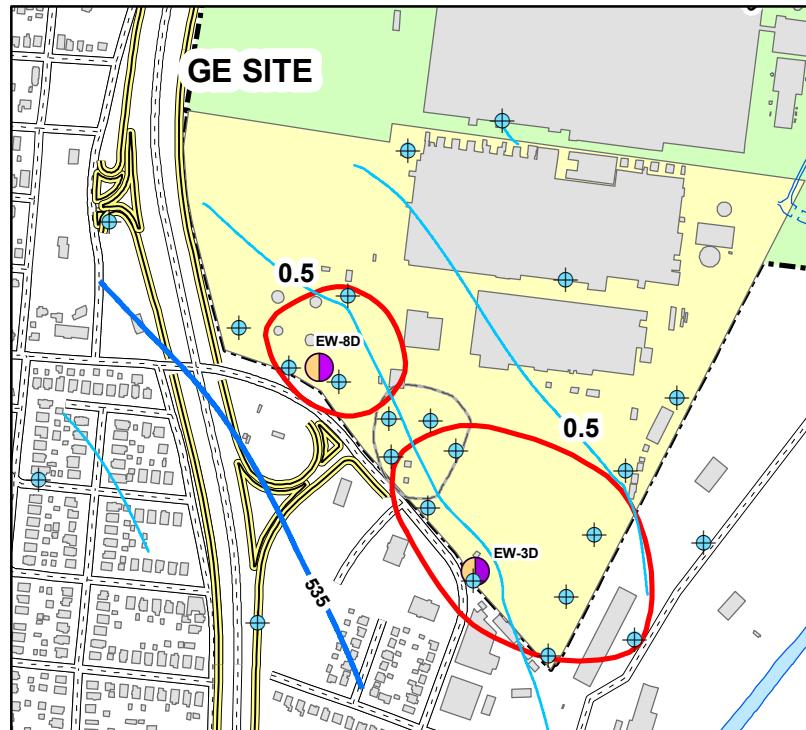
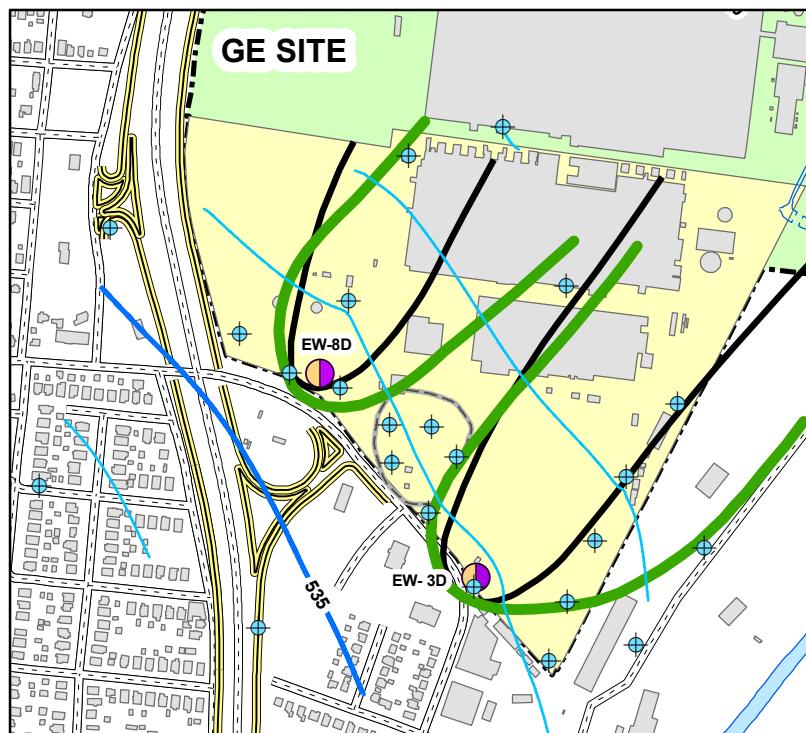
**GE  
EVENDALE, OHIO**

N

**USG UNIT  
ESTIMATED DRAWDOWN  
AND CAPTURE ZONE**

**FIGURE 4**

I:\Ge-Cap\6125\1502\2014 Evendale O&amp;M\Docs\Reports\1st Qtr Report 2014\Figures\004 - Figure 4 - LSG - 1st Qtr 2014.mxd

**LSG Zone****Approximate Drawdown (ft)**  
**April 9, 2014***Based on Manual & Transducer Measurements***Estimated Drawdown  
(feet)** —————**LSG Zone****Design Capture  
Zone (160 gpm)** —————**Apparent Capture  
Zone (98 gpm)  
1Q 2014** —————

PLOT DATE: 6/11/2014 oneilljm

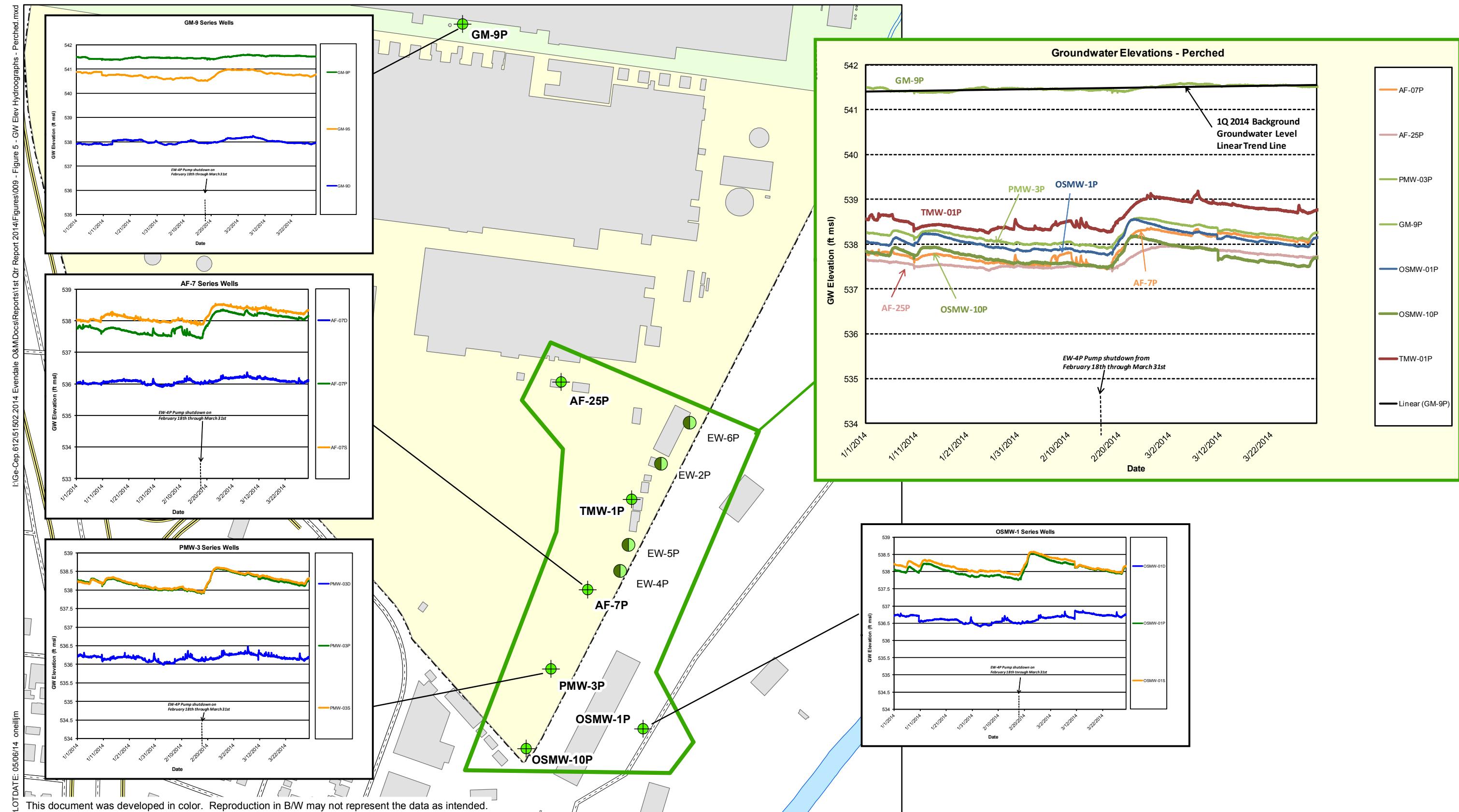
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**GE  
EVENDALE, OHIO**

N

**LSG UNIT  
ESTIMATED DRAWDOWN  
AND CAPTURE ZONES**

# FIGURE 5



## LEGEND

-  PERCHED MONITORING WELL
  -  PERCHED EXTRACTION WELL

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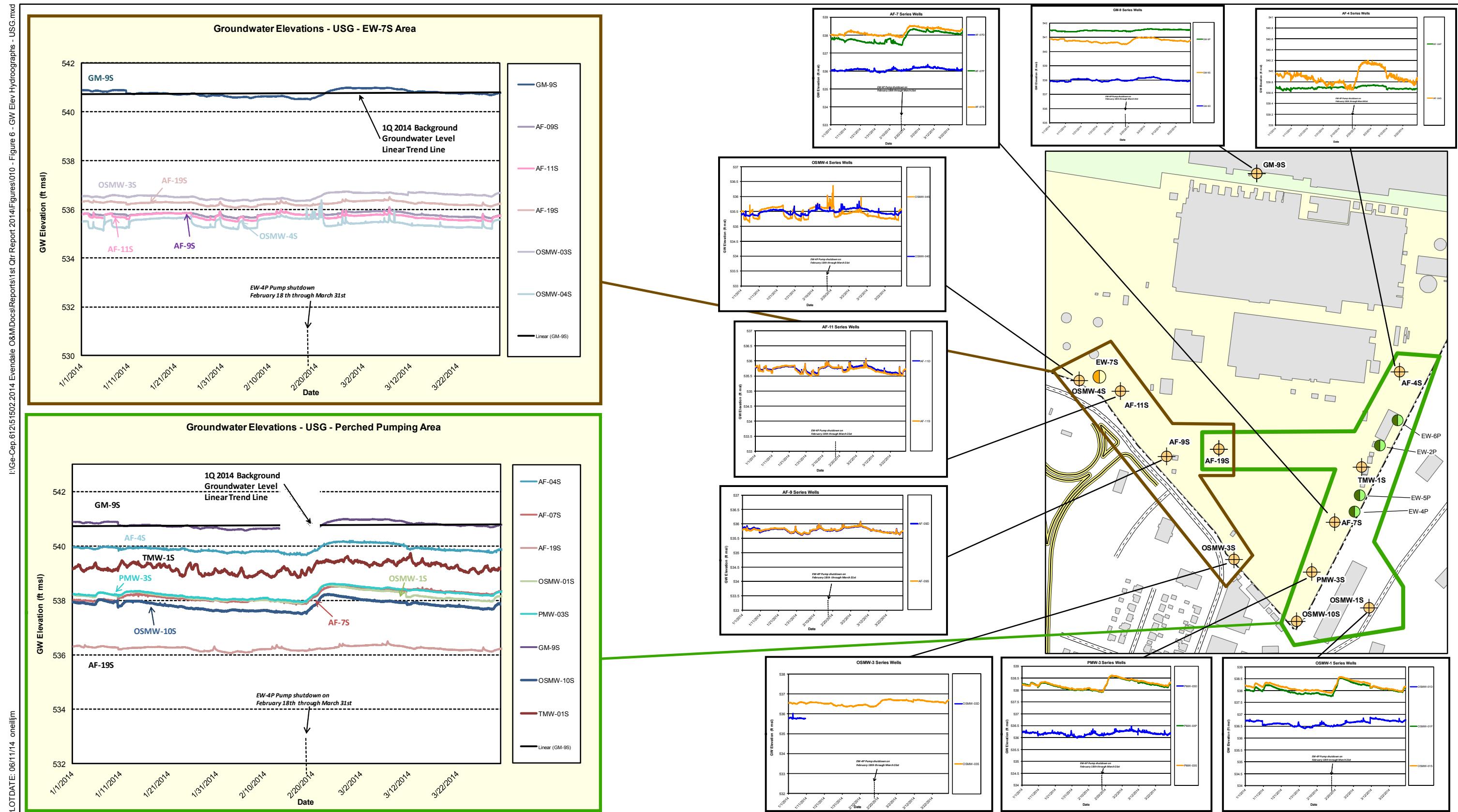
**GE  
EVENDALE, OHIO**

A horizontal scale bar representing 800 feet. The bar is divided into segments labeled 0, 100, 200, 400, 600, and 800. Below the bar, the word "Feet" is centered.

# **GROUNDWATER ELEVATION HYDROGRAPHS PERCHED UNIT**

5/5/2014  
612/51502-009





#### LEGEND

- USG MONITORING WELL
- USG EXTRACTION WELL
- PERCHED EXTRACTION WELL

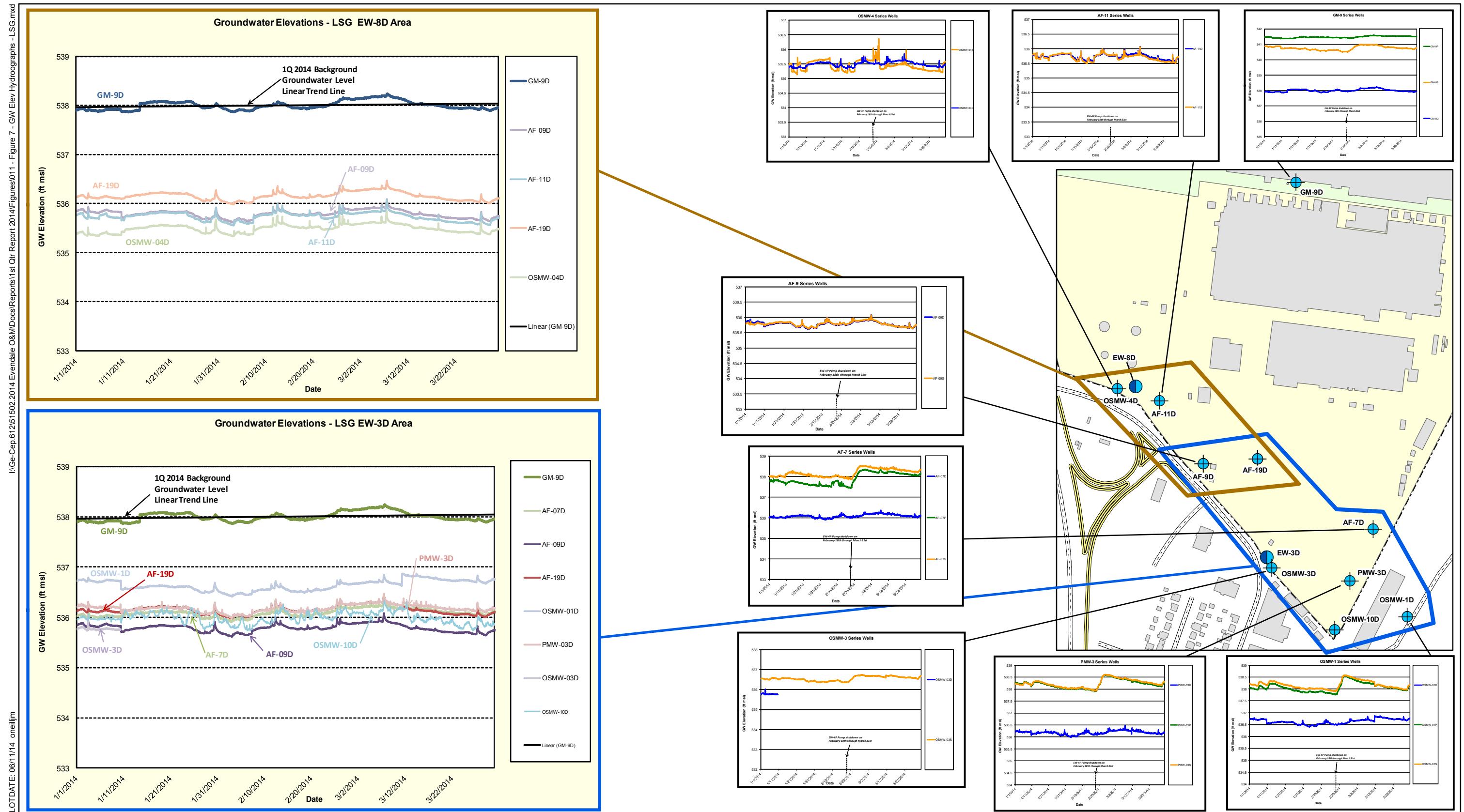
#### GE EVENDALE, OHIO

0 100 200 400 600 800  
Feet



#### GROUNDWATER ELEVATION HYDROGRAPHS USG UNIT

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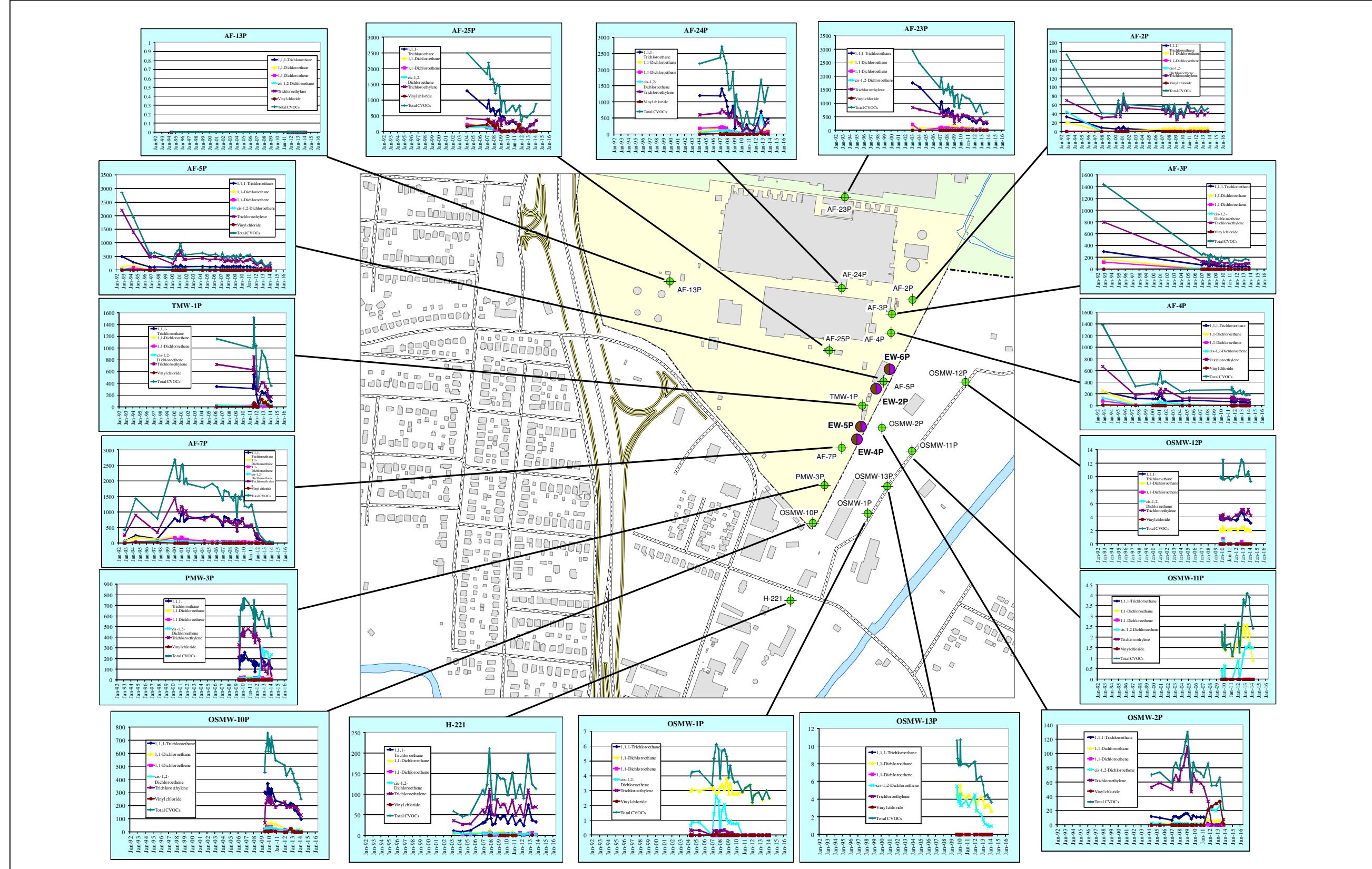
#### LEGEND

- LGS MONITORING WELL
- LGS EXTRACTION WELL

#### GE EVENDALE, OHIO



#### GROUNDWATER ELEVATION HYDROGRAPHS LSG UNIT



## PERCHED AQUIFER HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

**FIGURE 8**



NOVEMBER 2012  
1036148556-005

**LEGEND**

- USG AQUIFER MONITORING WELL - GROUNDWATER SAMPLE COLLECTED FOR ANALYTICAL ANALYSIS
- USG AQUIFER EXTRACTION WELL

**GRAPH KEY**

1,1,1-TRICHLOROETHANE	1,1-DICHLOROETHANE
1,1-DICHLOROETHENE	CIS-1,2-DICHLOROETHENE
TRICHLOROETHYLENE	VINYL CHLORIDE
TOTAL CVOCs	

NOTES:  
1. RESULTS ARE SHOWN IN ug/L.  
2. NON-DETECTED RESULTS ARE SHOWN AT THE X AXIS.  
3. CONCENTRATION SCALE MAY VARY BY GRAPH.

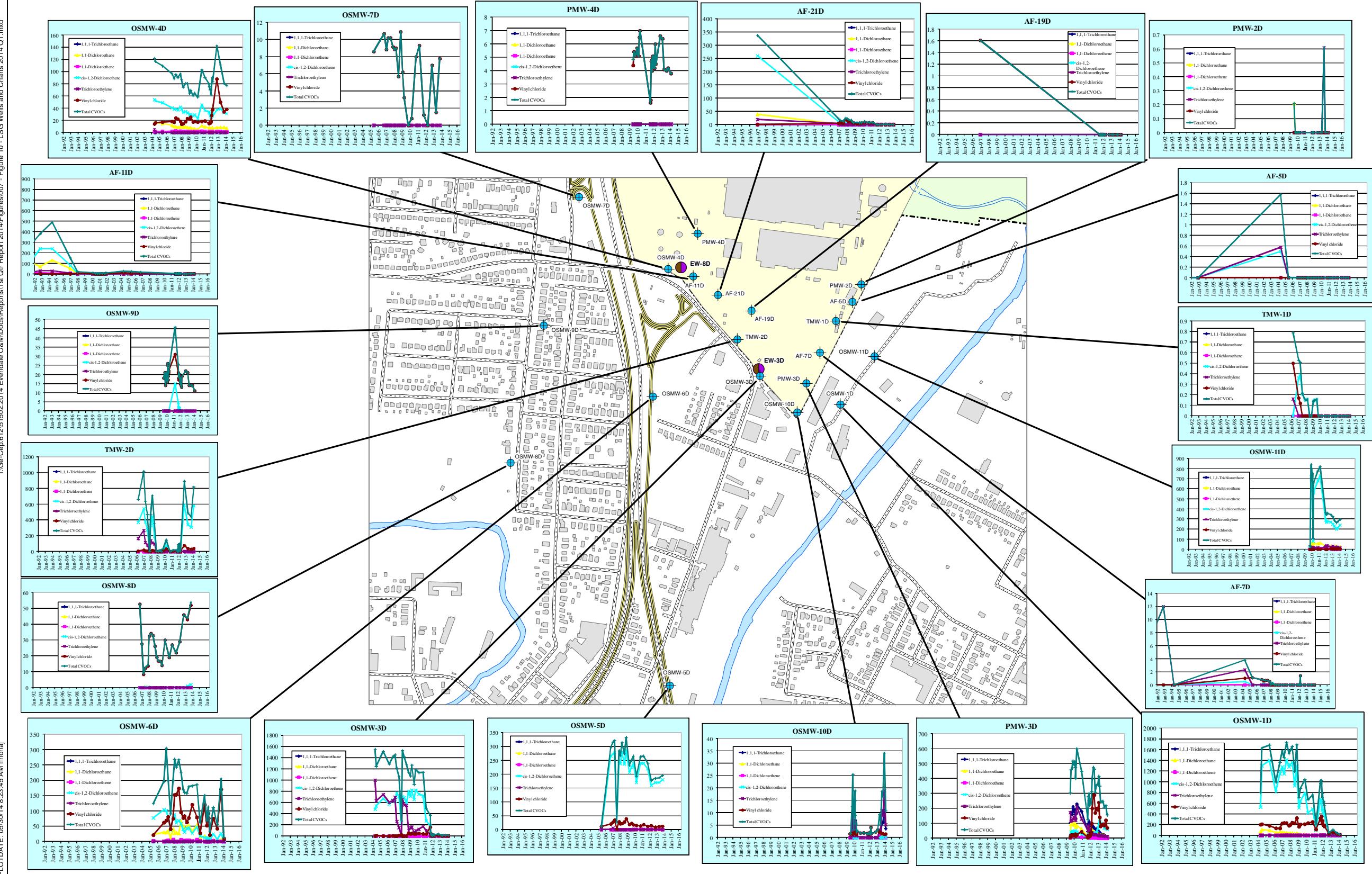
## USG AQUIFER HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

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**FIGURE 9**



NOVEMBER 2012  
1036148556-006

**LEGEND**

- LSG AQUIFER MONITORING WELL - GROUNDWATER SAMPLE COLLECTED FOR ANALYTICAL ANALYSIS
- LSG AQUIFER EXTRACTION WELL

**GRAPH KEY**

- 1,1,1-TRICHLOROETHANE
- 1,1-DICHLOROETHANE
- 1,1-DICHLOROETHENE
- CIS-1,2-DICHLOROETHENE
- TRICHLOROETHYLENE
- VINYL CHLORIDE
- TOTAL CVOCs

- NOTES:  
1. RESULTS ARE SHOWN IN ug/l.  
2. NON-DETECTED RESULTS ARE SHOWN AT THE XAXIS.  
3. CONCENTRATION SCALE MAY VARY BY GRAPH.

## LSG AQUIFER HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

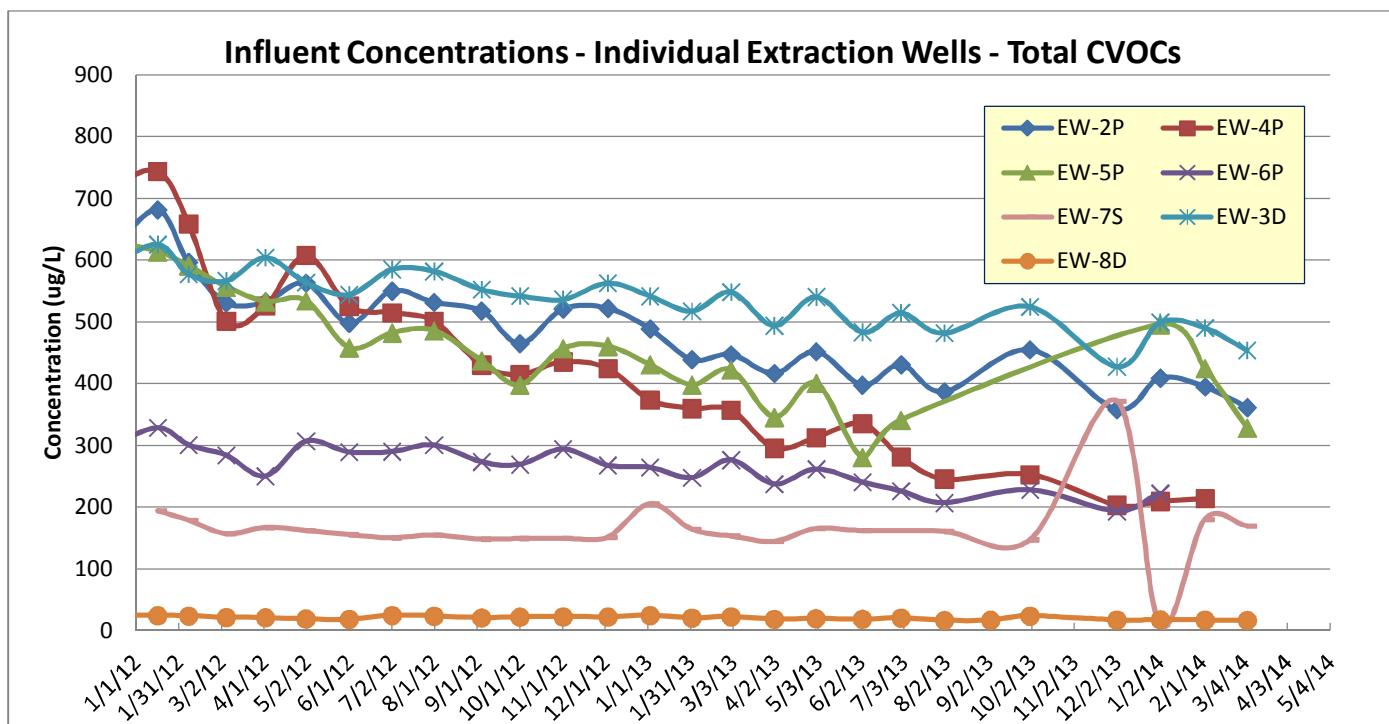
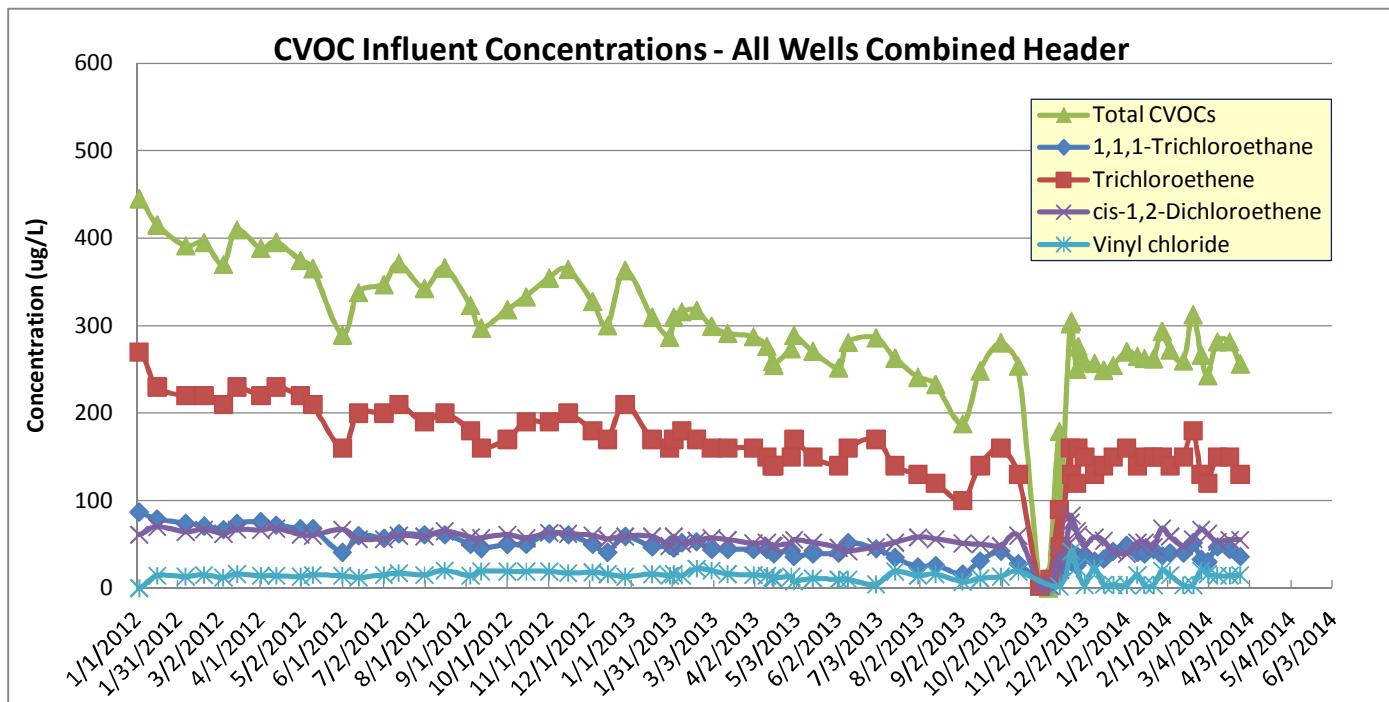
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GE  
EVENDALE, OHIO

**FIGURE 10**NOVEMBER 2012  
1036148556-007

**O'BRIEN & GERE**

# FIGURE 11



*Appendix A*  
*IRM Groundwater Sampling  
Program QA/QC Results and  
Data Verification*

## APPENDIX A QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

Level A data verification was performed by O'Brien & Gere Engineers, Inc. to assess groundwater IRM performance monitoring data quality for samples collected during the First Quarter 2014 (March 10, 2014 and March 11, 2014). Data verification was performed in accordance with the *IRM Performance Monitoring Plan* dated December 2010. The data verification level (Level A) for the performance samples was selected based upon data use (screening and trend analysis) and the quality of the laboratory data. Data verification was utilized to confirm the quality of the laboratory (TestAmerica Buffalo, Inc. (TA Buffalo) of Amherst, New York), which has an established record of acceptable quality for target analyte data from the routine groundwater IRM performance monitoring program. The Level A data verification included review of: (1) laboratory documentation, (2) chain-of-custody (COC) documentation, (3) target analyte results, (4) laboratory data qualifiers, (5) laboratory quantitation limits and method detection limits, (6) laboratory blank analysis, and (7) quality control samples.

The results of the Level A data verification indicated the following:

- Laboratory documentation was complete.
- Chain-of-custody (COC) documentation was complete.
- Target analyte results and data qualifiers were reported in accordance with the project requirements.
- Laboratory blank analysis did not indicate evidence of artifacts from the sampling or analytical process.
- Laboratory quantitation limits are within the limits listed in the QAPP, except for acetone and 2-butanone which were reported as 10 µg /l (SAP QLs are 5 µg /l). The reporting limits for acetone and 2-butanone reported by TA Buffalo were revised from 5 µg/l to 10 µg/l.
- The matrix spike / matrix spike duplicate (MS/MSD) recoveries were within control limits, except for the 1,2-dichloroethene recovery, which was outside of the control limits (74% to 124%) at 66% in the MSD sample, and the vinyl chloride recovery, which was outside of the control limits (65% to 133%) at 55% in the MSD sample. The sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample recovery met acceptance criteria; therefore, the 1,2-dichloroethene and vinyl chloride results do not require additional qualification due to the MS/MSD control limit excursion.
- The method blanks were within control limits and were not detected above the method detection limits.
- The laboratory control samples were within control limits.
- The continuing calibration verification (CCV) for 1,4-dioxane and 1,1-dichloroethene associated with batch 170212 recovered outside their control limits. The samples associated with the 1,4-dioxane CCV excursion were non-detects; therefore, the data have been reported without qualification. However, the samples associated with the 1,1-dichloroethene CCV excursion were both non-detects and detects; therefore, the data have been reported as estimated values with a "J" qualification
- Twelve samples, including the MS/MSD samples, were diluted to bring the target analytes into the calibration range: AF-4P 031114, AF-5P 031114, AF-7S 031114, AF-7S 031114MS, AF-7S 031114MSD, OSMW-1S 031114, OSMW-10P 031114, OSMW-10S 031114, OSMW-11D 031014, OSMW-11S 031014, PMW-3P 031114, and TMW-1P 031114. Elevated reporting limits are provided.

The overall usability for the performance monitoring data is acceptable for the intended use.

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